

Claims:

1. An electrochemical plating cell, comprising:
 - a fluid basin configured to contain an electrolyte plating solution, the fluid basin having an anolyte fluid volume and a catholyte fluid volume;
 - a fluid tank in fluid communication with the fluid basin and being configured to supply the electrolyte plating solution thereto; and
 - an electrolyte solution stabilization device in fluid communication with the fluid tank, the stabilization device comprising:
 - a fluid container having a fluid inlet and a fluid outlet; and
 - an absorbent material positioned in the fluid container in a fluid path between the fluid inlet and the fluid outlet, wherein the absorbent material is configured to leach a solution additive into the electrolyte plating solution to maintain the solution additive within a processing window during an electrochemical plating process.
2. The plating cell of claim 1, wherein the absorbent material comprises at least one of charcoal, polypropylene, glass, minerals, ion-exchange resins, resins for chromatography, and combinations thereof.
3. The plating cell of claim 1, wherein the anolyte volume is separated from the catholyte volume by a cationic membrane.
4. The plating cell of claim 3, wherein the fluid outlet of the fluid container is in fluid communication with the catholyte container.
5. The plating cell of claim 2, wherein the absorbent material is configured to leach additives into the electrolyte solution when a concentration of the additives is less than a desired concentration and to absorb additives from the electrolyte solution when the concentration is greater than the desired concentration.

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6. The plating cell of claim 5, wherein the fluid container is positioned in a fluid conduit connecting the fluid basin to the fluid tank.
7. The plating cell of claim 5, wherein the fluid container is positioned in the fluid tank.
8. The plating cell of claim 5, further comprising a filter positioned between the fluid container and the fluid basin, the filter being configured to remove particulate matter emanating from the absorbent material from a fluid stream passing therethrough.
9. A method for controlling additive concentration in an electrochemical plating cell, comprising:
 - saturating an absorbent material positioned in a container having a fluid inlet and a fluid outlet with a solution additive;
 - leaching the solution additive into the electrochemical plating solution when a concentration of the additive falls below a predetermined concentration; and
 - absorbing the solution additive from the electrochemical plating solution when the concentration of the additive increases above the predetermined concentration.
10. The method of claim 9, wherein the absorbent material comprises at least one of charcoal, polypropylene, glass, minerals, ion-exchange resins, resins for chromatography, and combinations thereof.
11. The method of claim 10, comprising positioning the container in a fluid conduit between the electrochemical plating cell and a fluid supply tank.
12. The method of claim 10, comprising positioning the container in a fluid supply tank in fluid communication with the electrochemical plating cell.

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13. The method of claim 11, further comprising filtering the electrochemical plating solution between the container and the fluid supply tank.

14. A method for maintaining an additive concentration in an electrochemical plating solution within a processing window, comprising:

positioning a container having a fluid inlet and a fluid outlet in fluid communication with a fluid conduit connecting a plating cell and a fluid supply tank;

saturating an absorbent material positioned in an interior of the container with the additive;

dispensing the additive from the absorbent material when a concentration of the additive in the plating solution is below a desired concentration; and

absorbing the additive from the plating solution into the absorbent material when the concentration of the additive in the plating solution is above the desired concentration.

15. The method of claim 14, wherein the absorbent material comprises charcoal.

16. The method of claim 14, wherein the absorbent material comprises polypropylene, glass, minerals, ion-exchange resins, resins for chromatography, and combinations thereof.

17. The method of claim 15, wherein container comprises a column.

18. The method of claim 15, further comprising filtering fluid exiting the fluid outlet for particulate matter.

19. The method of 14, further comprising positioning the container in a lower portion of the fluid supply tank.

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20. The method of claim 14, wherein dispensing comprises leaching the additive contained in the absorbent material in proportion to a fluid flow through absorbent material.

21. The method of claim 14, wherein dispensing comprises leaching the additive contained in the absorbent material in proportion to fluid pressure supplied to the container.